220X Color Speed Dome Camera

Manual

Contents

1. SYMBOL DESCRIPTION 2
2. FEATURES 3
3. SPECIFICATIONS 4
4. COMPONENT AND STRUCTURE DESCRIPTION 6
5. CAMERA SETTING 7
6. INSTALLATION 10
7. SYSTEM ASSEMBLY 11
8. OPERATION 13
9. OSD OPERATIONAL DESCRIPTION 20
10. QUICK OPERATIONAL REFERENCE TABLE 22
11. PELCO KEYBOARD OPERATION 23
12. APPENDIX 24
13. ACCESSORY 25

1. Symbol Description

1. Function keys are shown by, framed capital boldface print letters.
   Example: **ENTER**, **AUTO FOCUS**, etc.

2. Function key "+" indicates the order sequence.
   Example: **2** **8** + **ENTER** meaning, press the function key "**2**", "**8**", and then **ENTER**.

3. DEVICE 001:_ Indicate messages from the device and is shown on the control keyboard LCD display.

4. "**n**" indicates the ID number of the nth device (ID numbers ranges from 001~127).

2. Features

- Speedy response with 22x continuous auto-focus zoom lens and 10x Electronic Zoom.
- Auto Iris and Manual Iris Control.
- Advanced DSP Camera, including Auto White Balance, Backlight Compensation and Auto Iris Control.
- 360° Continuous Pan Rotation.
- 128 Preset Points Setup.
- Auto pan at pre-set point.
- Pan Speed up to 300°/Sec and Tilt Speed up to 200°/Sec.
- Horizontal Rotation of 180°.
- Built in 6 Alarm Inputs and one Relay Output.
- Two types of Alarm out signal are provided: NO and NC.
- Remote Control via RS-485.
- Connects up to 127 Speed Dome Cameras.
- Supports PELCO Protocol (D and P Protocol).
- PC control software is applicable.
- 12VDC Power Input (AC100～240V, 50Hz or 60Hz).
- Suitable for installation on different occasions; can be installed outside (with outdoor dome housing), flush mount on a ceiling or in the ceiling with only the dome showing.

3. Specifications

Manual Operation: Horizontal Rotational Speed	1°～150° Per Sec.
: Vertical Rotational Speed	1°～100° Per Sec.
Manual call on preset points: horizontal Rotational Speed	1°～300° Per Sec.
Vertical Rotation Speed	1°～200° Per Sec.
Preset Points Retention period	0～128 Sec.
Horizontal rotation of 180° single bond	300° Per Sec.
Horizontal Rotational Angle	360° Rotation
Vertical Rotational Angle	0°～90°
Precision Degree: Horizontal/ Vertical	± 0.25°
Preset Points	128 Preset Points
Group setup	6 Groups
ID position setup	1～127

Camera

Sensor Type	1/4” CCD Image Sensor
Total Pixels	811(H) X 508(V); 410k (NTSC)
	795(H) X 596(V); 470k (PAL)
Effective Pixels	768(H) X 494(V); 380k (NTSC)
	752(H) X 582(V); 440k (PAL)
Scanning System	2：1 Interlace
Horizontal Resolution	470(NTSC) TVL
	470(PAL) TVL
Minimum Illumination	NTSC: 1.0 Lux (30 IRE)
	PAL: 1.0 Lux (210 mV)
S/N Ratio	More than 48dB
Synchronization	Internal Synchronization
Video Output	Composite: 1.0 Vpp / 75Ω, BNC
22X optical zoom	
Focal Distance	f = 3.9 ～ 85.8 mm (±5%)
Iris	F1.6 ～ 3.7 (±5%)
Focus Mode	Auto/ Manual
Iris Control	Auto/ Manual
Gain Control	Auto/ Manual
Digital Zoom	On/ Off

Electrical

DC Power Supply	100VAC ～ 240VAC
Power Input	12VDC
Power Consumption	13W
Controller Interface	RS-485
Alarm Input	6 Alarm Inputs
Alarm Output	1Set NC (Normal close) 1Set NO (Normal open) 0.5A 120Vac/1A 24Vdc
Alarm Output Mode	Lock onto the last Alarm Input

Environment

Operating Temperature	-10°C ～ 50°C
Relative Humidity	0% ～ 90%

Mechanism

Height	206.5mm
Diameter	145mm
Weight (Standard)	2.2Kg

4. Component and Structure Description

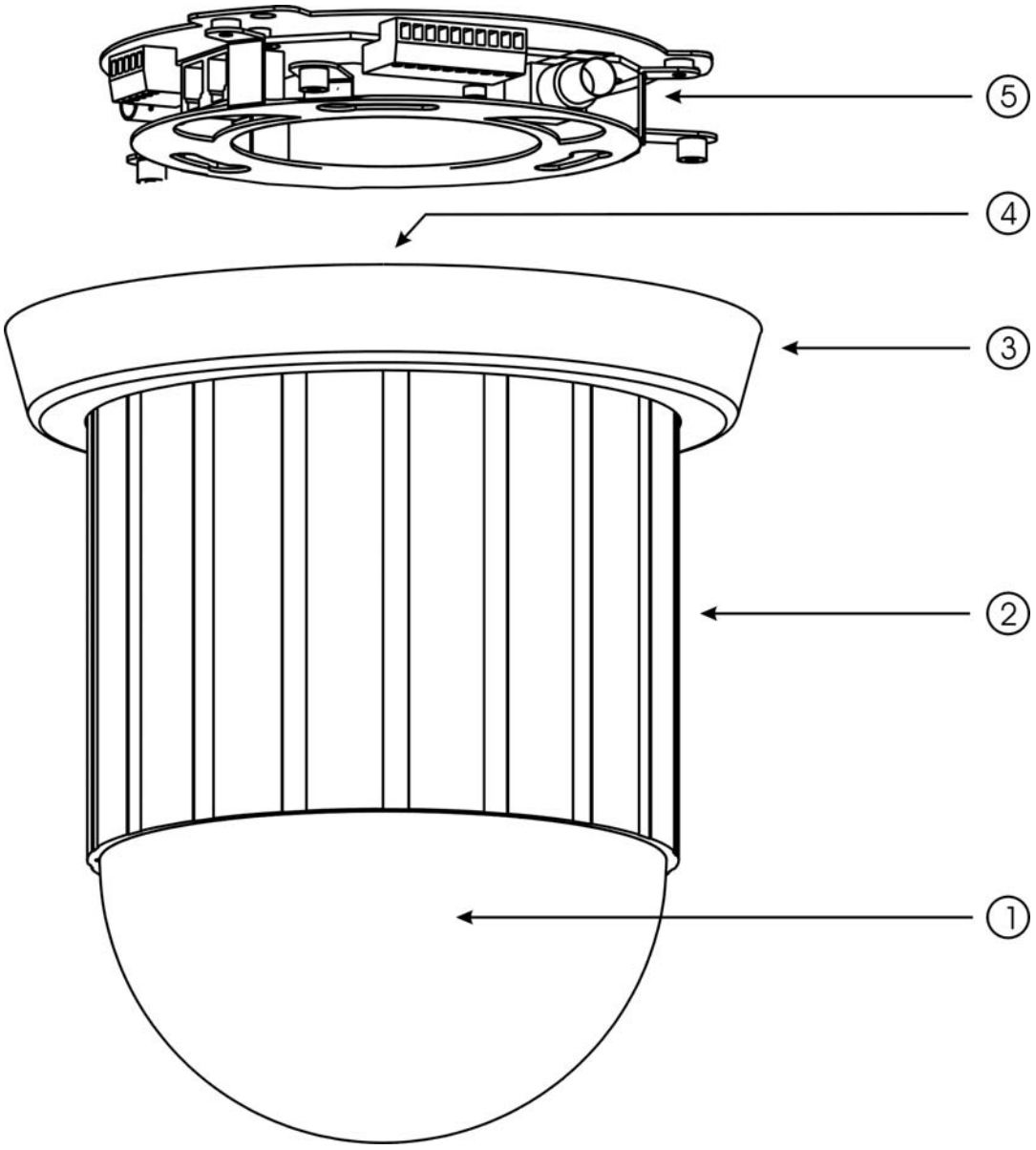
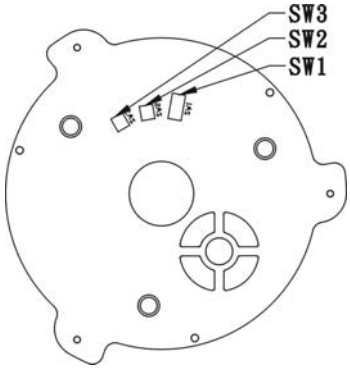


Figure 1.

① Transparent Cover/ Black Housing
② Machine Housing
③ Embellish Cover
④ ID Number/ Protocol/ Baud Rate Setting (Please Refer to Figure 2)
⑤ Alarm Input or Output / Video Output / Power Input Terminal (Please Refer to Figure 3)

5. Camera Setting

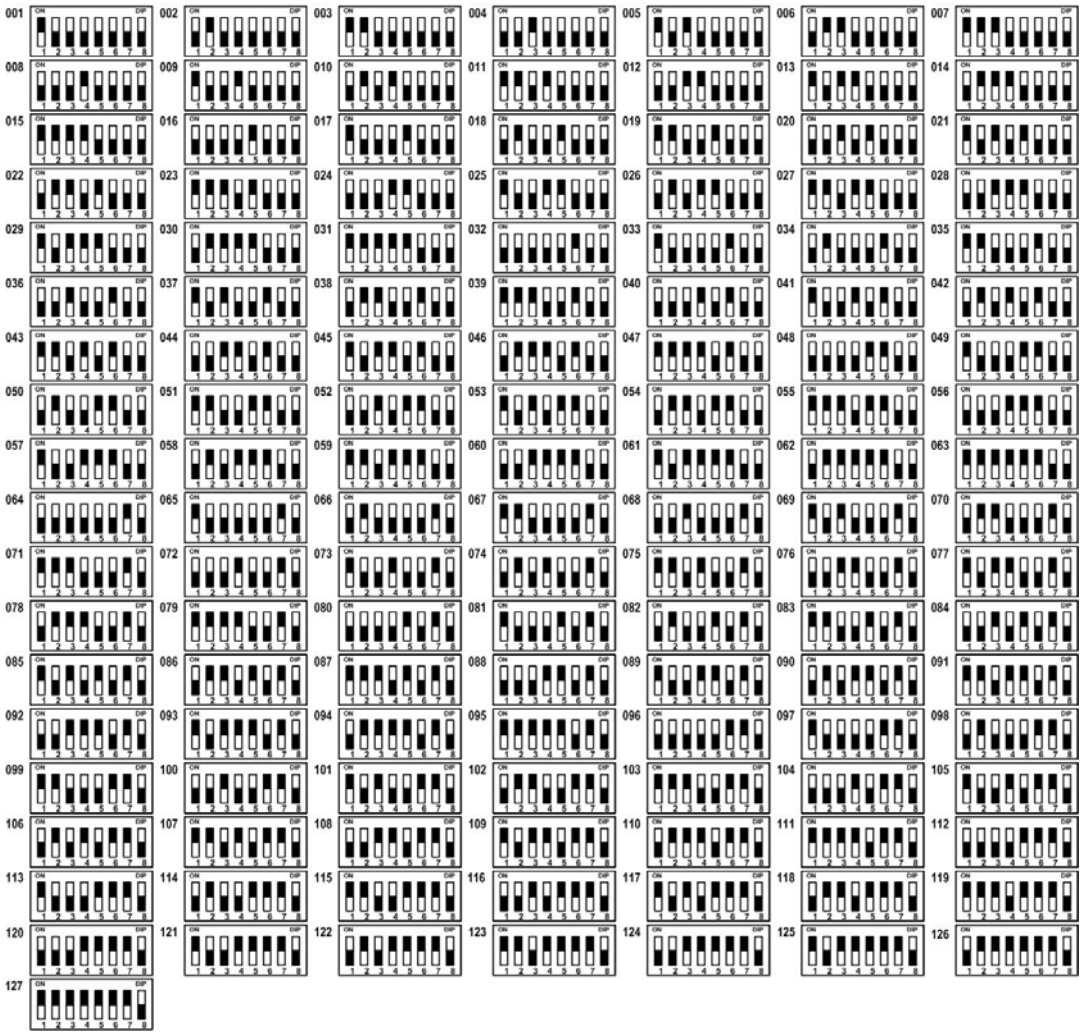
Figure 2.

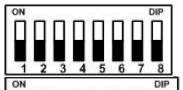


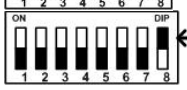
SW1: ID Number Setting

Connection of up to 127 Speed Dome Cameras, each camera has its own ID Number.

DIP Switch setting, shown below:



*  **Setting 000, then the image display will show: DEVICE N/A.**

*  **Does not affect setup.**

SW2: Protocol Settings

Settings	
Switch Number #4 #3 #2 #1	**Protocol**
Off Off Off Off	**YOKO**
Off Off Off On	PELCO
Off Off On Off	Reserved
Off Off On On	Reserved

* Speed Dome automatically detects the type of PELCO Protocol. No switch settings are required to set D and P Protocols.

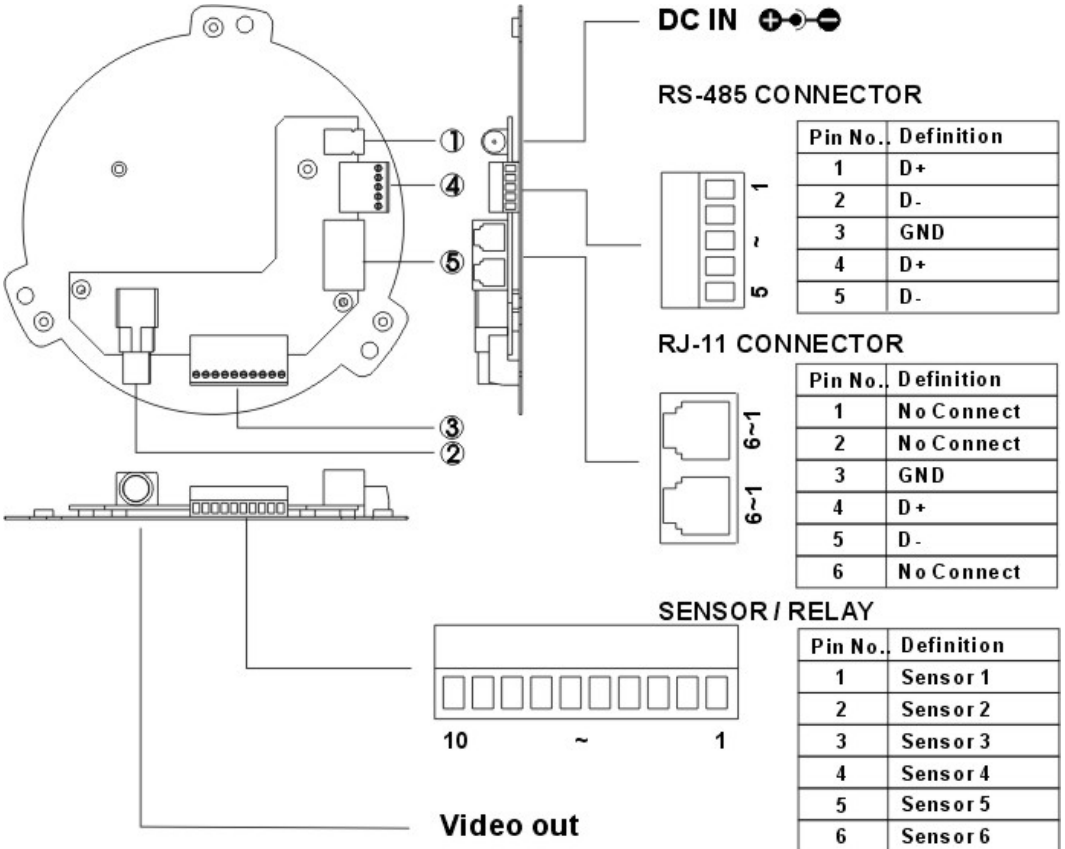
* BOLD: Default Settings.

SW3: Baud Rate Settings

Settings	
Switch Number #4 #3 #2 #1	**Baud Rate**
Off Off Off Off	**9600 BPS**
Off Off Off On	4800 BPS
Off Off On Off	2400 BPS
Off Off On On	19200 BPS

* BOLD: Default Settings

Terminal base Connection, Data Line, and Signal Line Regulation



Pin No..	Definition
1	D+
2	D-
3	GND
4	D+
5	D-

Pin No..	Definition
1	No Connect
2	No Connect
3	GND
4	D+
5	D-
6	No Connect

Pin No..	Definition
1	Sensor 1
2	Sensor 2
3	Sensor 3
4	Sensor 4
5	Sensor 5
6	Sensor 6
7	GND
8	COM
9	NC
10	NO

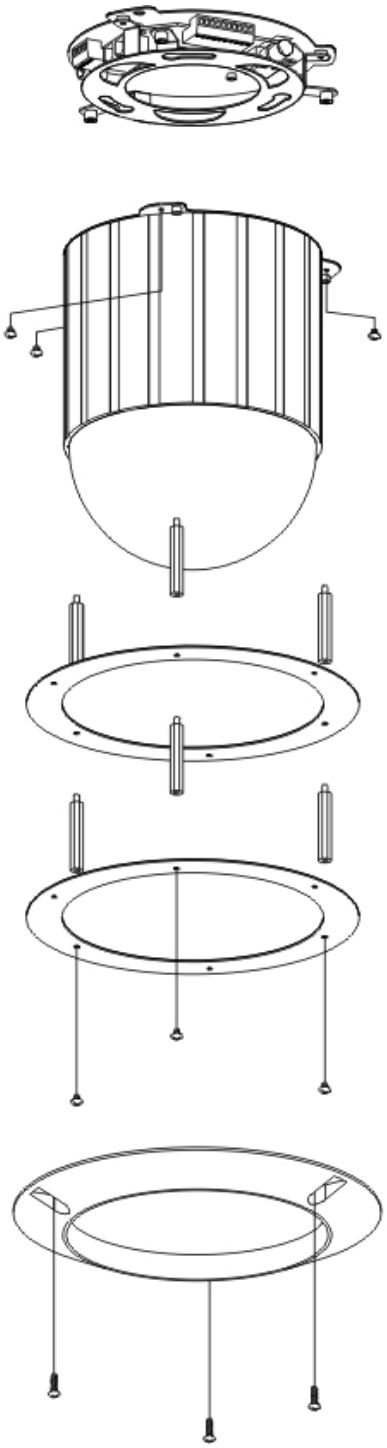
Figure 3

1. Power Input Terminal - DC 12V Input and power consumption of 1.1A.
2. Video Output Terminal - Video Signal Output: CVBS 1. 0Vp-p 75Ω BNC.
3. The Speed Dome Camera is equipped with 6 external alarm triggering input and 2 sets of alarm output (1 set NO and 1 set NC).
   Alarm Input Voltage at 5.6Vmax and Alarm Output Specification: 0.5A 120VAC/ 1A 24VAC.
4. RS-485 Communication Control Input and Output connector
   RS-485 Input Terminal has two terminal points (D+, D-), using the twisted pair wire to connect onto the next Speed Dome Camera.
5. RJ-11 Input / Output Connector Control
   The function is similar to RS-485 Communication Control Input and Output connector. Using RJ-11 connector to interconnect.

6. Installation

Indoor Installation Structure Diagram (In-Ceiling and Flush Mounting)

In-Ceiling Mount



Flush Mount

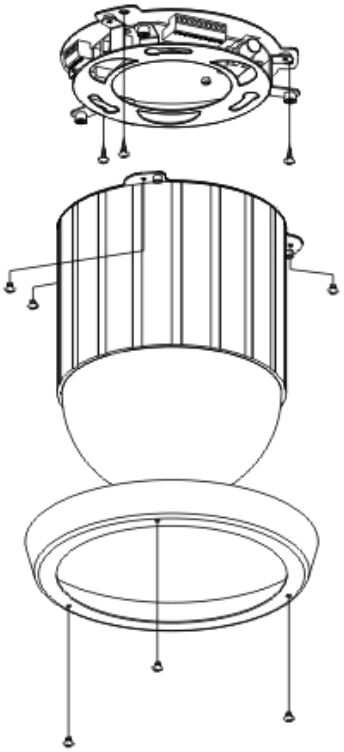


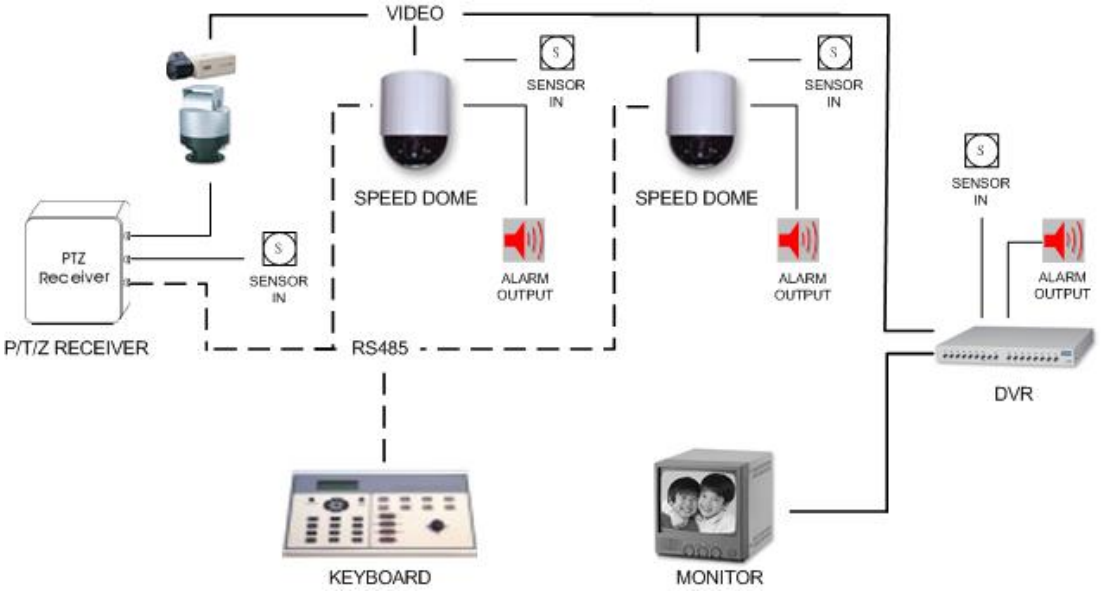
Figure 4

7. System Assembly

Keyboard Controlling Application

User-friendly design with simple installation; it is able to control single or multiple device surveillance system (the system supports connections of numerous Speed Dome Cameras or PTZ Receivers).

It performs real-time operating environment connected through RS-485 terminal, for monitoring and connecting the Speed Dome Camera and the P/T/Z Device from the control keyboard using twisted pair wiring connection.



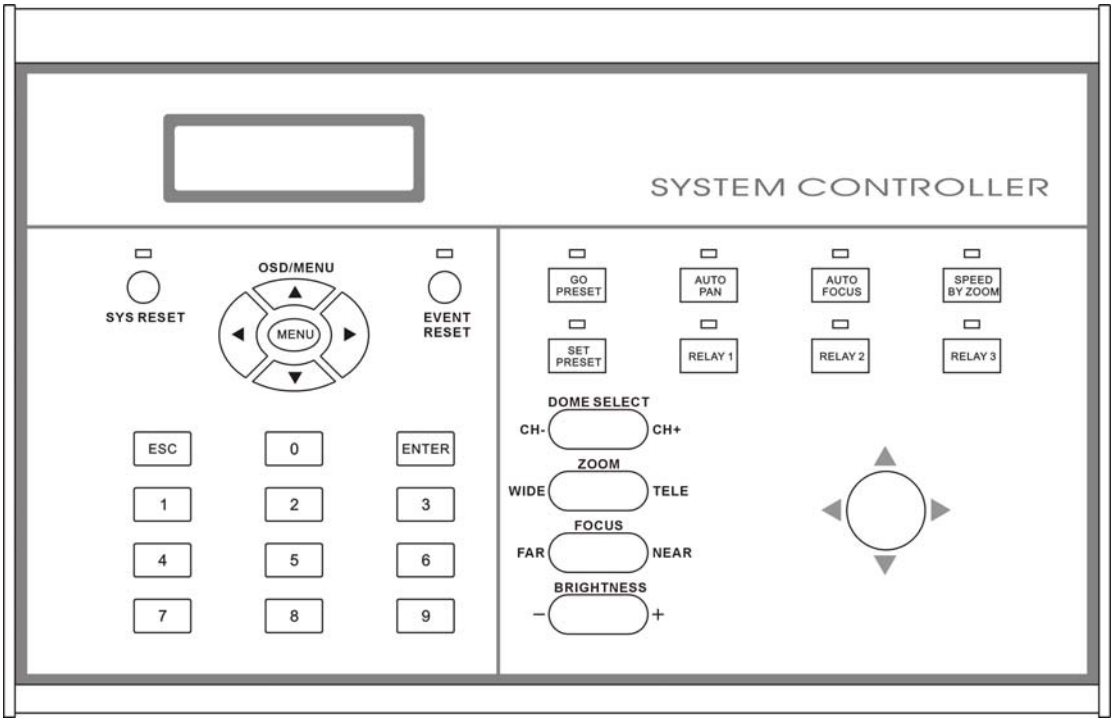
Connecting Keyboard (YK8332)

- Connect the RS-485 serial port (terminal D +) from the control keyboard, to the Speed Dome Camera RS-485 serial port (terminal D +). And connect the RS-485 serial port (terminal D -) from the control keyboard, to the Speed Dome Camera RS-485 serial port (terminal D -).
- The system supports connections of numerous Speed Dome Cameras or PTZ Receivers, assigning a set of ID for setup and control.
- Before cascading the second device, connect DATA OUT from the first device RS-485 serial port (terminal D+) onto DATA IN from the second device RS-485 serial port (terminal D+), and connect the RS-485 serial port (terminal D-) from the first device to the RS-485 serial port (terminal D-) of the second device.

Connecting PELCO Keyboard (KBD200A / KBD300A)

. Connect the RS-422 serial port (terminal TX +) from the control keyboard, to the Speed Dome Camera RS-485 serial port (terminal D +). And connect the RS-422 serial port (terminal TX -) from the control keyboard, to the Speed Dome Camera RS-485 serial port (terminal D -).

8. Operation



Speed Dome Start-up

After connecting all necessary cables, start-up the Speed Dome Camera. Then, the Speed Dome Camera will return to the initial set position; meaning that the Speed Dome Camera is in Stand by mode, ready for controller keyboard connection control.

Connection Control of Remote Control

After connecting all necessary cables, startup the system connection, by pressing **SYS RESET** key. The LCD then displays the following message: [SYSTEM LINKING?] (the LED starts flashing to indicate their existence). Press again **SYS RESET** key, the system connection will re-start, search the system connection device and make sure that all the connected devices are probably connected.

∗ When the LCD displays the following message:

[DEVICE : XXX LOST
PRESS SYS RESET] **, it means that an error has been occurred.**

Please press SYS RESET key, after checking and sorting the circuit.

Manual Control (Up / Down / Left / Right / Speed)

Speed Dome Cameras or P/T/Z Receivers may be controlled manually, by using the joystick (Up / Down / Left / Right / Speed).

►Joystick

The movement depends on the angel of the joystick:

Push the joystick up or down, the camera lens will move forward or backward. Push the joystick left or right, the camera lens moves leftward or rightward.

►Zoom Speed Setup

The LED lights up after pressing **SPEED BY ZOOM** key. Then, the Pan/Tilt movement of the Dome will be proportional to the ratio.

∗ Movement slows down when zooming.

Switching Control of Speed Dome Camera

May select to connect a single Speed Dome Camera or 127 Speed Dome Cameras at once. After completing installation (Setup, wiring and with the power switched ON), select the ID number of the Speed Dome Camera to be controlled.

► Use the number key + **ENTER** key

Pre-select the desired nth device, by pressing the number and **ENTER** Key on the controller keyboard. Then, the LCD will display ID of the device.

► Use the **DOME SELECT KEY** function of control keyboard.

DOME SELECT Key

DOME SELECT (CH+) the system automatically selects for the ID number larger than the present ID number.

DOME SELECT (CH-) the system automatically selects for the ID number smaller than the present ID number.

∗ After completing the change, the LCD will reflect the selected device ID and when the action was failed or the selected device did not exist, no changes will be shown by the LCD, it remains as original status.

Zoom Control

This item allows you to change the zoom ration from OFF to 220X (22 times optical magnify).

►Lens Control-Zoom TELE

Press **ZOOM TELE** key, to narrow the angle of viewing and release the key to stop zooming.

►Lens Control-Zoom WIDE

Press **ZOOM WIDE** key, to widen the angle of viewing and release the key to stop zooming.

Focus Control

Focus Control may be done by AUTO or manually by the user.

►Manual Control- Focus Far

Press **FOCUS FAR** key, to focus far and release the key to stop focusing.

►Manual Control- Focus Near

Press **FOCUS NEAR** key, to focus near and release the key to stop focusing.

►Auto Focus Control

Press **AUTO FOCUS** key or the joystick, the LED of the **AUTO FOCUS** lights up and press **AUTO FOCUS** key again, to disable the function.

* **FOCUS FAR and FOCUS NEAR will not function, when AUTO FOCUS function has been started.**

Setting the Preset Points

Setting the preset point enables the Speed Dome Camera to have preset points from 1~128. You may key in a number (1~128) and press **SET PRESET** key, to store current position as preset. You may also key in a number and run the preset point that you've just stored.

① Selecting a Speed Dome Camera

Press **1** key and the **ENTER** key, the LCD will display:

DEVICE 001: _

, it means that Speed Dome number "1" has been selected.

Example: Select the 1st Speed dome Camera = **1** + **ENTER**

Select the 127th Speed dome Camera = **1** **2** **7** + **ENTER**

② Controlling the Joystick

The joystick may move the Speed Dome to that specific location.

③ Controlling the zoom ratio from 1X to 220X (22 times optical).

It is suggested when setting the preset points to manually adjust the iris, to enable clarity and stability of the focal distance.

④ Key in a number (1~128) and press **SET PRESET** key, the LCD will display:

SAVE TO PRESET
XXX ?

, then press again **SET PRESET** key, and when the display show:

SAVE OK!

, meaning that the setup has been completed.

＊ Repeat the steps ①~④ again, to set more preset points.

Call up the Preset Points

When the setup of the preset point has been completed, it may be called upon.

►Enter the assigned preset number and press **GO PRESET** key, the LCD will display:

, and the Speed Dome will move to that specific preset point.

Example: 1st preset point = **1** + **GO PRESET**

128th preset point = **1** **2** **8** + **GO PRESET**

Change the Preset Point

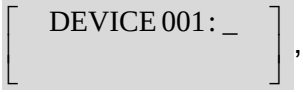
To change the preset point, use the joystick to move the cursor to the preset point setup selection and change to your desired settings.

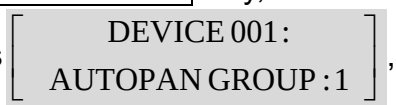
Preset AUTO PAN

The Auto Pan has 1~32 setting points and you have to decide the pan direction and the pan speed (total of 4 setting groups), every group has 32 setting points.

- **The fifth group functions as a simple continuous rotational manner; included are 1st, 2nd, and 3rd preset point.**
- **The sixth group functions as a simple continuous rotational manner; included are 4th, 5th, and 6th preset points.**

►Start-up Preset AUTO PAN

Under Control Mode (Assume device=1), when the LCD displays: 

, key in the group number to be setup (Assume group=1, then enter 1), then press **AUTO PAN** key, the LED of the **AUTO PAN** lights up, LCD displays 

, meaning that the setup has been completed.

►Stop Preset AUTO PAN

Press **AUTO PAN** Key, the LED of the **AUTO PAN** goes off, meaning that the function has been disabled.

►Control Under Preset AUTO PAN

When auto preset mode has been started, no other operations will function. Unless, when auto-preset mode has been disabled.

Example: When device 2 runs preset AUTO PAN; then zoom control and focus control will be temporary out of function. Until, when auto- preset mode has been disabled.

Alarm Management

►Alarm Input

●The Speed Dome Camera is equipped with six alarm input connectors, Alarm1~Alarm6, corresponds to both preset points and AUTO PAN Group. Once the alarm signal is detected, the Speed Dome Camera will automatically move to the preset point or Start-up AUTO PAN.

●For P/T/Z Receiver or other alarm devices. Please refer to its relevant product manual for operation.

►Alarm Output

Alarm output is resulted when the alarm of the Speed Dome Camera has been triggered (selectable: NO or NC mode).

►Alarm Mode Management

The Speed Dome Camera is set to lock on the last alarm input. Thus, once the alarm signal is detected, the Speed Dome Camera will automatically move to the preset point or Start-up AUTO PAN, triggering the alarm to buzz,

EVENT RESET LED will be lighted and the LCD will display: DEVICE:XXX / ALARM INPUT, informing the user that an alarm event has been detected.

- When the alarm of the Speed Dome Camera has been triggered under Auto Pan ON mode, the Speed Dome Camera will rotate in 300° per second to the preset correspondent point (Group AUTO PAN). When the alarm of more than one device has been triggered continuously, then the system will select to lock on controlling the last device triggered by the alarm event.

- When the alarm of the Speed Dome Camera has been triggered under Auto Pan OFF mode, the Speed Dome Camera will rotate in 300° per second to the preset correspondent point (Group AUTO PAN).

- The buzzer does not dismiss automatically, the user has to press **EVENT RESET** key, in order to stop the buzzer.

- When the Speed Dome Camera detects an alarm signal; the message "**ALARM"** will be shown on the top right hand corner of the display. The message does not dismiss automatically, but by making slight movements with the joystick, clears away the message.

- Entered the Speed Dome Camera setup mode, straight after the alarm event has been cleared, the Speed Dome Camera will recheck the alarm status, when exiting the Speed Dome Camera setup mode.

9. OSD Operational Description

OSD TREE STRUCTURE

MAIN MENU	ITEM	SELECTION	NOTES
STATES SET UP	ID DISPLAY	ON/OFF	
	FLIP FUNCTION	ON/OFF	
	TITLE DISPLAY	ON/OFF	
	TITLE SET	xxxxxxxx	Use number 0 as substitute for capital letter alphabet O
CAMERA SET UP	**EXPOSURE**		
	SHUTTER SPEED	000~028	
	EXPOSURE Auto		
	EXPOSURE Iris		
	Iris Level	074~179	
	EXPOSURE AGC		
	AGC Level	028~220	
	EXPOSURE Manual		
	Iris Level	074~179	
	AGC Level	028~220	
	BACKLIGHT		
	BACKLIGHT	ON/OFF	
	BLC Level	0~80	
	WBC MODE		
	WBC MODE Auto		
	WBC MODE Hue		
	MWB Data	000~099	
	WBC MODE Indoor		
	WBC MODE Outdoor		
	WBC MODE Manual		
	Red Data	000~255	
	Blue Data	000~255	
	WBC MODE Push Auto		
	Setup	ON/OFF	

MAIN MENU	ITEM	SELECTION	NOTES
IMAGE SET UP	BRIGHTNESS	000~099	
	FLICKERLESS	ON/OFF	
	SHARPNESS	000~015	
ALARM SET UP	MIRROR	ON/OFF	
	COLOR	ON/OFF	
	ALARM PIN	001~006	Alarm Serial Number
	ALARM SWITCH	ON/OFF	Alarm Switch
	ALARM TYPE	GPO/RAP	Execution Mode after Alarm GPO: GO POSITION RAP: RUN AUTOPAN
	AUTOPAN GROUP	001~004	
	PRESET POSITION	001~128	Preset Point Serial Number
	DWELL TIME (sec)	001~128	Alarm retention period; retention --- meaning forever halt.
HOME SET UP	HOME FUNCTION	ON/OFF	Homing Function
	PRESET POSITION	001~128	Select Homing Point
	RETURN TIME (min)	001~030	Homing Time, start counting from the instant when the device stopped moving.
AUTOPAN SET UP	AUTOPAN GROUP	001~004	AUTOPAN 005、006 as simple manner, it does not need setup.
	AUTOPAN INDEX	001~032	
	PRESET POSITION	001~128	Notation --- meaning to ignore the points after AUTOPAN POINT
	AUTOPAN SPEED	001~015	Speed to the next point: 001=Slowest and 015=Fastest
	DWELL TIME (sec)	001~128	
LOAD DEFAULT			Press **ENTER** key, to display Load default and press it again to confirm.

10. Quick Operational Reference Table

Functions		Method of Operation
Restart System Connection		**SYS RESET** (SYS RESET LED ON)
P/T/Z Control	Upward rotation	Push the joystick forward
	Downward rotation	Push the joystick backward
	Leftward rotation	Push the joystick leftward
	Rightward rotation	Push the joystick rightward
Select Dome Camera		No. Key+ **ENTER** or **CH+** 、**CH-**
Lens Control		**ZOOM TELE** or **ZOOM WIDE**
Manual Control		**FOCUS FAR** (AUTO FOCUS LED OFF)
		FOCUS NEAR (AUTO FOCUS LED OFF)
Auto Focus		**AUTO FOCUS** (AUTO FOCUS LED ON)
Speed By Zoom		**SPEED BY ZOOM** (SPEED BY ZOOM LED ON)
Brightness Control		**BRIGHTNESS +** or **BRIGHTNESS -**
Chose to Select the Preset Points		No. Key + **GO PRESET** (128 Preset Points)
Start-up the Preset Mode		No. Key (Group No.)+ **AUTO PAN** (AUTO PAN LED ON)
Stop the Preset Mode		**AUTO PAN** or Push the joystick (AUTO PAN LED OFF)
Disable the Alarm		**EVENT RESET** (EVENT RESET LED OFF)
Relay Switch		**RELAY1** **RELAY2** **RELAY3** (LED light ON meaning LED ON and vise versa.)

*** The following function: RELAY 1 , RELAY 2 and RELAY 3 ; does not work on Speed Dome Camera.**

*** The following function: BRIGHTNESS + and BRIGHTNESS – ; only works under Auto Exposure, IRIS Manual or AGC Manual.**

11. PELCO Keyboard Operation

Normal Display Mode

Speed Dome Function	PELCO Keyboard
Focus Near	NEAR
Focus Far	FAR
Brightness +	OPEN
Brightness -	CLOSE
Pan Left	Move Joystick Left
Pan Right	Move Joystick Right
Tilt Up	Move Joystick Up
Tilt Down	Move Joystick Down
Zoom Tele	Twist Joystick clockwise
Zoom Wide	Twist Joystick counterclockwise

OSD Setup Menu Mode

Speed Dome Function	PELCO Keyboard
Cursor Up	NEAR
Cursor Down	FAR
Menu Enter	OPEN
Menu Exit	CLOSE
Decrease (-)	Move Joystick Left
Increase (+)	Move Joystick Right
None	Move Joystick Up
None	Move Joystick Down
None	Twist Joystick clockwise
None	Twist Joystick counterclockwise

Speed Dome Function	PELCO Keyboard Operation
Accessing Main Menu	Enter 95; Hold the PRESET key (approximately five seconds) until the main menu appears on the screen.
Call up the Preset Points	Enter preset number (1~32, 35~82) and press PRESET to put camera in preset position.
Setting the Preset Points	To program, position camera, enter desired preset number (1~32,35~82), and hold down PRESET for two seconds.
AUTO SCAN	Enter 99 and press PRESET
STOP SCAN	Enter 96 and press PRESET
Call up Preset AUTO PAN	Enter group number (1~6) and press PATTERN
Stop Preset AUTO PAN	Press ACK

Please refer to PELCO Keyboard (KBD200A/ KBD300A) manual for more information.

12. Appendix

Trouble shooting

1. Speed Dome Camera switched OFF
   1-1 Check whether the power supply is 12V.
   1-2 Check whether the fuse has been burned.
   1-3 Check whether the 20PIN of the camera foot has fallen off.
2. No video image on the monitor
   2-1 Check whether the video signal line of the Speed Dome Camera is connected properly.
   2-2 Check whether video signal has been disconnected.
   2-3 Check whether the video signal line of the monitor is connected properly.
   2-4 Check whether the 20PIN of the Speed Dome Camera has fallen off.
3. Unable to control the Speed Dome Camera
   3-1 Check whether the ID position is correct.
   3-2 Check whether the communication control output or input terminal RS-485 In / Out JACK of the Speed Dome Camera and the control wire are properly connected.
   3-3 Check whether the communication control terminal RS-485 JACK and control wire is properly connected.
   3-4 Please disables Auto Pan function.
   3-5 Check whether the Speed Dome Camera is in the act of processing the alarm due to alarm interchange action. For this eliminates all functions.
4. Speed Dome Camera Out of Focus
   4-1 Please wipe with cotton-cloth when there are dusts on the transparent cover or on the Speed Dome Camera Housing.

Please contact your local dealer for any other problems unmentioned above.

13. Accessory

1. DC adapter x1
2. Power Line x1
3. Power connector x1
4. 6P4C - 3M/ white double headed phone line x1
5. M3x4 screw x6 (In-Ceiling/ Flush Mount)
6. In-Ceiling Fixed Ring x1 (In-Ceiling Mount)
7. 35mm pillar of copper x3 (In-Ceiling Mount)
8. 40mm pillar of copper x3 (In-Ceiling Mount)
9. 45mm pillar of copper x3 (In-Ceiling Mount)
10. Embellished flush cover x1 (Flush Mount)
11. Embellished In-Ceiling Cover x1 (In-Ceiling Mount)
12. User's Manual x1